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ABSTRACT

The focus of this two-part paper is the formulation of a research paradigm and agenda to guide investigations into the relationships between human resource management and basic skills achievement in reading and mathematics. The first part concerns the relationship between student achievement and attributes of school and classroom contexts. Conceptualizations of basic skills achievement are discussed and the authors briefly review what research has found about the constituents of effective practices in schools and classrooms. In the second part, discussion centers on managerial options for improving the effectiveness of education professionals. This section reviews the current knowledge base and discusses areas in which new knowledge is needed. The human resource management factors considered include personnel allocation, inservice education, control over work decisions, personnel evaluation, incentives and rewards, and professional associations and agencies. (Author/JM)

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The Management of Education Professionals In Instructionally Effective Schools: Toward a Research Agenda

by

CEPM Educational Professions Committee

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September 1981

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THE MANAGEMENT OF EDUCATION PROFESSIONALS IN INSTRUCTIONALLY EFFECTIVE SCHOOLS: TOWARD A RESEARCH AGENDA

This paper was written by the Education Professions Committee which is part of an NIE-funded program in the Center for Educational Policy and Management (CEPM) at the University of Oregon. The mission of the program is to investigate how policy and management affect student mastery of basic skills in reading and mathematics. The Education Professions Committee was formed because the CEPM staff believes that human resources represented by the various education professions have an important impact on school productivity. These resources need to be better understood, through a program of research, so that policy makers can use them effectively to improve students' achievement of the basic skills.

The purpose of this paper is to provide an initial conceptualization of the parameters, relationships, and scope of work that the Education Professions Committee might include in its research agenda. The reader is advised to read another CEPM paper, "Linking Educational Policy and Management with Student Achievement," (Duckworth 1981) to see how the Committee's work relates to the larger mission of the Center's research program on human resource management.

Better utilization of resources is directly related to increasing student learning. Stated crudely in economic terms, improved handling of raw materials will lead to higher quality products. Indeed, the input-output formulation of educational productivity has been conspicuous in educational production research. However, although the economics metaphor has provided a convenient research prototype, it may have encouraged an emphasis more on the quantity of available resources than on the nature of the social environment in which they occur and are used

(Barr and Dreeben 1977; Murnane 1980). The question of how resources are allocated in an ongoing system has also been slighted. Knowing that resources exist in different quantities or even in different qualities tells us nothing about how they are co-joined in the teaching process.

Thus, our primary objective is to consider how human resources (i.e., education professionals) might best be managed in order to improve student achievement. Our interest is in formulating a research paradigm and a research agenda that will guide investigations into the relationships between human resource management and basic skills achievement in reading and mathematics.

An example will make clear the distinction between research on effective classrooms and schools and research on human resource management. One of the major findings of the Beginning Teacher Evaluation Study (Denham and Lieberman 1980) was that time allocated for basic skills instruction is positively correlated with students' basic skill acquisition. This finding means that teachers who allocate more time for basic skills instruction are likely to be more effective (in the sense of promoting student achivement) than teachers who allocate less time.

The question then arises, What management practices could be instituted to increase the effectiveness of teachers with respect to time allocation? Inservice education, monitoring of teacher time allocation, and removal of distractions from teachers' work environments are management options that come to mind. One might also ask the question, What management practices could be instituted to improve building principals' ability to use time allocation as an instructional resource? In fact, one might ask similar questions about any professional group whose work impinges on, or is affected by, allocation of time for basic skills instruction. These kinds of questions, in our view, relate to research on the management of human resources rather than to research on class-

room effectiveness.

There is renewed appreciation among the general public and educators alike that a major goal of the schools is to help students acquire basic skills, especially in reading and mathematics. The most visible expressions of this new commitment are the "back to basics" movement in the American school curriculum and the increasing number of states that have mandated competency requirements for high school graduation.

Basic skills in reading and mathematics are certainly important learning outcomes in their own right. Furthermore, mastery of basic skills is a necessary prerequisite for the development of problem-solving and other thinking skills, which constitute another important set of learning outcomes. But despite the importance of basic skills, public education is not doing a good job of insuring that its student clientele acquire them. An alarming percentage of high school students is unable to demonstrate basic skill proficiency when administered competency tests. Also discouraging is the gap between the basic skill attainment of white, middle-class students and students of other ethnic groups and from families of low socioeconomic status (National Assessment of Educational Progress 1979; National Assessment of Educational Progress n.d.; National Center for Educational Statistics 1978).

Other background factors also appear to influence student achievement, although not to the same degree as social class and race. For instance, sex appears to play a significant role. In the early grades, males have many more problems with reading than females (Bond and Tinker 1967, Gates 1961, Herman 1975) and even in adulthood have somewhat lower scores than females on tests of verbal reasoning and complex verbal comprehension (Maccoby and Jacklin 1974). Although girls learn to count sooner than boys and score equally well on tests of arithmetic reasoning through the elementary school years (Maccoby 1966),

they begin to fall behind boys in mathematics achievement in the high school years (Aiken 1976, Anastasi 1958, Astin 1974, Fennema 1974). Area of residence may also affect achievement, at least as it is associated with social class and race. Both students in highly urbanized areas (National Assessment of Educational Progress 1979) and those in very isolated rural settings (Clay 1976, Edington 1971) have been observed to have lower mastery of basic skills. Finally, various handicaps are related to achievement. Students with physical or mental disabilities are often at a disadvantage in acquiring basic skills.

Many studies have tried to explain the basis of these inequities in achievement. For instance, the effects of social class on achievement have been linked to variations in socialization and linguistic patterns in the home (Bernstein 1970, 1973, 1976). Sex differentials have been traced to variations in maturation and to sex differences in perceptual development (Stockard 1980).

Whatever the ultimate source of these inequities, the schools are charged with educating all children to the best of their abilities, compensating for any handicaps that students face due to their backgrounds. In charging schools with improving student achievement, it is often assumed that greater student equity will be attained. In other words, increased achievement in a school or classroom implies that all students acquire basic skills and that the association of achievement with background factors such as social class, race, sex, area of residence, and handicap becomes much smaller (cf. Cohen, Koehler, Datta, and Timpane 1981).

The National Institute of Education and other funding agencies have sponsored a substantial amount of research over the past decade or so to develop new knowledge that might be useful in remediating inadequacies in student mastery of basic skills. As a result of their efforts, there is a growing

number of replicated research findings about characteristics of classrooms (Brophy 1979a, Medley 1977, Rosenshine 1976, Rosenshine & Berliner 1978) and schools (Brookover et al. 1977, Edmonds 1979, Weber 1971) that are associated with improved student achievement in the basic skills. We will review the findings of this research later in the paper.

Most characteristics of effective classrooms and effective schools, as revealed through this research, involve the direct or indirect participation of education professionals. It appears that the quality and use of the human resources assigned to schools have a significant effect on students' level of achievement in the basic skills.

This conclusion may seem so obvious as to be trivial in its implications. After all, it is hard to imagine large numbers of students engaged in sustained learning without professional educators to guide them. What is not so obvious is how these educators should act and think so that all, or almost all, students become proficient in the basic skills. The body of research referred to above suggests a set of practices for basic skills instruction that is more specific and empirically-based than anything previously available.

Terminology and Organization

As used in this paper, the term "student achievement" refers to mastery of skills in reading and mathematics. Research has dealt with student achievement at both the school and classroom levels, both of which will be addressed in this paper. The term "education professionals" will be used when possible instead of the more abstract and general term "human resources," although we attach basically the same meaning to each term. Our range of interest will include any group of education professionals who have a potential contribution to make to student

achievement. Teachers and building principals, however, are the major focus of attention in this paper, because the available research is most clear about how these groups affect student achievement at school and classroom levels. We also make occasional reference to resource specialists and teacher aides as they might affect instructional effectiveness. The term "management" will be used to refer to strategies (e.g., personnel selection, allocation, and evaluation; staff training and development; use of incentives and rewards) that can be employed by policymakers and administrators to improve the effectiveness of education professionals.

The remainder of this paper is divided into two major sections. Section I concerns the relationship between student achievement and attributes of school and classroom contexts. In this section, we discuss conceptualizations of basic skill achievement and briefly review what research has found about the constituents of effective practices in these two instructional contexts. In Section II, discussion turns to our major concern: managerial options for improving the effectiveness of education professionals. Because our primary objective is the formulation of an agenda for research on the relationship between human resource management and student achievement, this section reviews in some depth the existing knowledge base and discusses areas in which new knowledge is needed. The human resource management factors that we have chosen to consider here include personnel allocation, inservice education, control over work decisions, personnel evaluation, incentives and rewards, and professional associations and agencies. We are well aware that there may be other human resource management factors which could be added to this list. Our analysis of the variables we have identified may be regarded as a model for studying the influence of others.

I. Relationship Between School and Classroom Attributes and Student Achievement

In this section, we review research that suggests school and classroom attributes most often associated with student attainment of basic skills. It is important to consider these two instructional contexts as they mediate the effects of human resource management strategies on student achievement. (These strategies will be the focus of Section II.) As shown in Figure 1 on the next page, student achievement in the basic skills is seen as the outcome that we wish to maximize. Classroom instruction is seen as the proximal cause of student achievement. School-level factors are placed above the classroom context box in the figure because they are seen as influencing student achievement indirectly through their impact on how education professionals perform in the classroom.

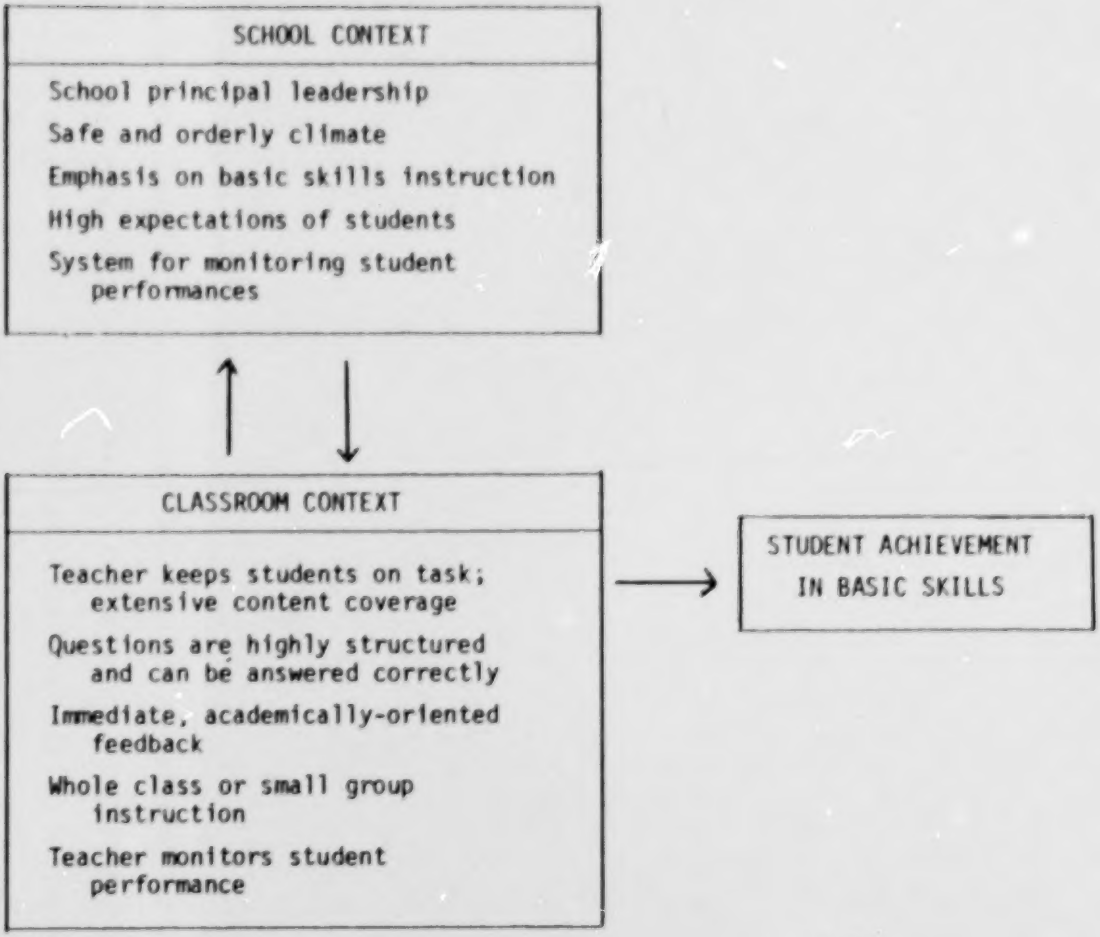
Conceptualizations About Curriculum and Measurement

We will begin by first considering the way in which basic skills achievement is conceptualized. Even when education professionals are in agreement about "basic skills" as a priority goal of schooling, they may disagree about the nature and measurement of this concept. Their disagreements reflect different conceptualizations that educators hold about matters relating to curriculum and measurement. Quite possibly these individual differences in perceptions mediate the influence of human resource management strategies on student achievement. We recommend, therefore, that factors related to the conceptualization of basic skills be studied as a set of intervening variables in research on management strategies for improving the effectiveness of education professionals.

An example will illustrate the importance of conceptualizations about basic

FIGURE 1

SCHOOL AND CLASSROOM ATTRIBUTES
AND THEIR RELATIONSHIP TO STUDENT ACHIEVEMENT


SCHOOL CONTEXT
School principal leadership
Safe and orderly climate
Emphasis on basic skills instruction
High expectations of students
System for monitoring student performances
CLASSROOM CONTEXT
Teacher keeps students on task; extensive content coverage
Questions are highly structured and can be answered correctly
Immediate, academically-oriented feedback
Whole class or small group instruction
Teacher monitors student performance
STUDENT ACHIEVEMENT IN BASIC SKILLS

skills. If teachers have varying conceptions of basic skills, and the achievement tests used to assess student learning are based on a still different conception, school management will suffer from a faulty data base. Furthermore, research on student achievement becomes virtually meaningless under these conditions. Tests designed to measure what has been learned should be high in content validity or should sample systematically for a defined domain of knowledge. Tests used in school effects or classroom effects research tend to be weak in this respect (Gall 1973).

Educators' conceptualizations of basic skills achievement can vary with respect to three dimensions: what should be learned; how well it should be learned; and how quickly it can be learned. These dimensions are important because each one may be affected by a distinctive set of instructional conditions, which in turn are controlled by a distinctive set of management strategies.

What Should Be Learned. Teachers, administrators, curriculum specialists, and others make decisions about what is to be learned. The "what" is sometimes stated as objectives and is considered by some educators to constitute the curriculum, "the planned learning outcomes for which the school is responsible" (Popham and Baker 1970). Teachers, materials, and programs differ from each other in what they provide instruction about, and different students may earn different scores on an achievement test because they were taught different content (Walker and Schafferznick 1974).

The "what" of instruction is also important because learning outcomes are differentially influenced by school resources. The studies of the International Association for the Evaluation of Educational Achievement found that, "the more a subject is learned in school, the greater the effects of schooling"

(Wolf 1979, p. 326). The research staff of the Beginning Teacher Evaluation Study (Fisher, Berliner, Filby, Marliave, Cahen, and Dishaw 1980) also found that variations in allocated and engaged time were more highly correlated with some types of school achievement than with others. Thus, the "what" of instruction may limit the extent to which certain learning outcomes can be modified by education professionals.

Based on his experience with the Beginning Teacher Evaluation Study, Berliner (1980) offered the opinion that one probably could not find consensus on definition of learning outcomes beyond the fourth grade level. Indeed, consensus even at this level is problematic. A recent analysis of fourth-grade mathematics textbooks (Kuhs & Freeman 1979) indicated that they differed from each other in important ways. Many topics found in one textbook were not found in the other textbooks. Many of the core topics common to all of the textbooks varied in the amount of emphasis they were given. Once again, the question of how to achieve consensus of perceptions among education professionals emerges as a major problem of basic skills instruction. Research is needed to clarify the nature of the problem and how it affects management of education professionals.

How Well It Should Be Learned. Two teachers may begin to teach the same skill, such as tying one's shoelaces or saying the sound represented by "b." Students of both teachers may learn the same skill (the same "what"). However, students of one teacher may be able to perform the skill more quickly than students of the other teacher. The quickness or speed represents a distinctive type of basic skills achievement.

Another index of how well something has been learned is the strength of retention over time. Classroom effects research typically measures achievement immediately prior to instruction and immediately following instruction; gain scores or residualized gain scores are used as the criterion. Another approach

is to assess retention, which can be accomplished by measuring achievement at a later time following instruction.

A third index is the stability or reliability of learning. Two students may have learned the same "what," but one student can perform it consistently on demand, whereas the other student is "shaky" and able to perform some times but not at others.

How Quickly It Can Be Learned. Efficiency research is generally of two types. One type is concerned with differences in time required for particular students to achieve mastery of a set of learning outcomes. The other type of efficiency research is concerned with differences in achievement gains per unit of time. For example, two teachers may agree on the "what" and "how well" of instruction. In a month's time, none of their students may have achieved mastery, but one teacher's group, on average, may be further along toward mastery than the other group. We need to know more about how education professionals perceive the academic gains that are possible with different groups of students over the course of a school year.

Research on Classroom Effectiveness

Several reviewers of research on classroom instruction (Brophy 1979a, Rosenshine 1976, Rosenshine and Berliner 1978) have concluded that "direct instruction" is more effective than other instructional practices in improving basic skills achievement, especially in elementary classrooms with students of minority and low socioeconomic backgrounds. Cohen and his colleagues (1981) identified these as the principles of direct instruction:

1. The teacher keeps the students on academic tasks, and the content coverage is extensive.
2. The teacher and workbook questions are highly structured, and elicit a relatively high rate of correct answers from students.
3. The teachers and materials provide immediate, academically-oriented feedback, praising correct responses and exploring incorrect ones.
4. Instruction is provided to the whole class or to small groups.
5. Teachers monitor student performance during recitation sessions, and provide individualized feedback to students. (p. 5)

We would add to this list the following instructional factors, each consistent with the direct instructional model:

6. The teacher is characterized by clarity and enthusiasm (Rosenshine 1971).
7. The teacher uses curriculum programs that provide a system of materials and teaching methods consistent with the principles of direct instruction, such as the Keller Plan (Ryan 1974), mastery learning (Bloom 1976), and DISTAR (Becker 1977).
8. The teacher ensures that students complete their homework assignments (Bloom 1976).

These instructional principles, validated across several large-scale studies, challenge our thinking about human resource management. For one thing,

direct instruction requires a teacher who can maintain a high level of alertness, who is well-organized, and who assigns basic skills a high priority in the curriculum. Some teachers may not have the necessary temperament and attitudes that Gersten, Carnine, and Williams (in press) identified in their recent study of a school district's adoption of the DISTAR curriculum.

What kinds of management practices are necessary to deal with teachers who are "in place" in a district and are unwilling to provide basic skills instruction or use direct instruction principles? For example, subject-matter teachers in high school may feel it outside their job description to teach a remedial basic skills class. This is one problem for research on human resource management. Another sort of problem is suggested by the fact that direct instruction principles are not in the repertoire of many inservice teachers. These principles form a technology of instruction that must be learned by the teachers.

Although trained, motivated teachers are the key human resource in direct instruction, teacher aides can also make a contribution to classroom productivity. Bloom (1981) has found that the time required for a student to reach mastery, in a mastery learning program, is greatly accelerated if he or she is assisted by a tutor. The tutor can contribute to direct instruction in basic skills by encouraging the student to stay on task, and by providing immediate feedback on the student's responses. Teacher aides are good candidates to serve in this tutorial role. We need to learn more about whether, in fact, they do serve as tutors. More generally, we need to learn how to manage teacher aides so that they make a worthwhile contribution to classroom productivity.

The most fundamental principle of direct instruction, it seems, is keeping students on task for sustained periods of time. This is not possible unless

teachers themselves can stay on task. A classroom environment that minimizes distractions is needed. If the teacher is distracted the pace of instruction cannot be maintained. Distractors--either external, as in the case of loudspeaker announcements, or internal, as in the case of unruly students--provide another focus for research on human resource management in basic skills instruction.

Research on School Effectiveness

Several studies have identified characteristics of elementary schools that foster effective basic skills instruction for minority and socioeconomically disadvantaged students (Brookover et al. 1977, Rutter, Maughan, Mortimore, Ouston, and Smith 1979). Edmomds (1979) reviewed these studies and concluded that the following factors are positively associated with school productivity:

1. Strong administrative leadership by the school principal, especially in regard to instructional matters;
2. A school climate conducive to learning, i.e., safe and orderly;
3. School-wide emphasis on basic skills instruction, which entails agreement among the professional staff that instruction in the basic skills is the primary goal of the school;
4. Teacher expectations that students can reach high levels of achievement; and
5. A system for monitoring and assessing pupil performance that is tied to instructional objectives.

We are struck by the similarities between these factors and the situation of Marva Collins, the Chicago teacher recently featured by CBS on 60 Minutes. Ms. Collins, a black teacher, teaching only black elementary-age children, was

pictured as the inspiring successful teacher, running her own 35-pupil school in her house. By her own admission, she had failed as a teacher for the 10 years she had been working in the Chicago schools. She quit those schools in disgust. Yet, she was succeeding with similar children in her own school. It is instructive to note her new teaching conditions.

First, the children were sent by parents who chose her school and paid extra for the privilege. Second, the students knew they could be expelled if their behavior did not match the teacher's standards. Third, Ms. Collins eliminated recess, physical education, and other "extras"; she taught these students the basics for 6 hours a day, and she assigned each student homework. Finally, Ms. Collins did not have to expend energy combating the rest of the regular school context such as bells, announcements, and attendance sheets.

Edmonds' five factors and Ms. Collins' application of them impress us as being quite plausible. If one wants to improve school productivity, it makes sense that one would need to institute the conditions specified in Edmonds' list. Yet each item on the list raises problems for human resource management. For example, consider the first item--strong instructional leadership by the school principal. What needs to be accomplished in order to help principals become effective with respect to instructional leadership? Is it a matter of training? Or a matter of realigning the principal's work responsibilities to allow more time to perform this function? Research is needed to develop a knowledge base for improving principals' effectiveness in promoting school productivity.

Another condition that seems essential, but difficult to achieve, is "school-wide emphasis on basic skills instruction." Little is known about the professional groups who might play a role in building this consensus or about how they

might be managed. Research on the developmental characteristics of effective schools (how did they get to be effective?) would be especially useful for dealing with these issues.

Also, it may prove difficult to instill high teacher expectations for student achievement. Although research (Brophy 1979b, Good 1979) has clearly shown that teacher expectations strongly influence student learning, there has been little attention given to understanding how teachers develop certain levels of expectations. Elashoff, Dixon, and Snow (1971) summarize variables that could influence teacher expectancies. However, there is as yet no clearly defined and achievable means of assisting teachers to form the appropriate beliefs and expectancies that would promote optimal student achievement. Research in this area is clearly needed.

Summary

The purpose of this section has been to review characteristics of school and classroom contexts most often associated with student attainment of basic skills. We have viewed these attributes as the foundation for the creation of effective human resource management strategies. In the following section, we focus on the strategies themselves.

II. The Relationship Between Human Resource Management and Student Achievement

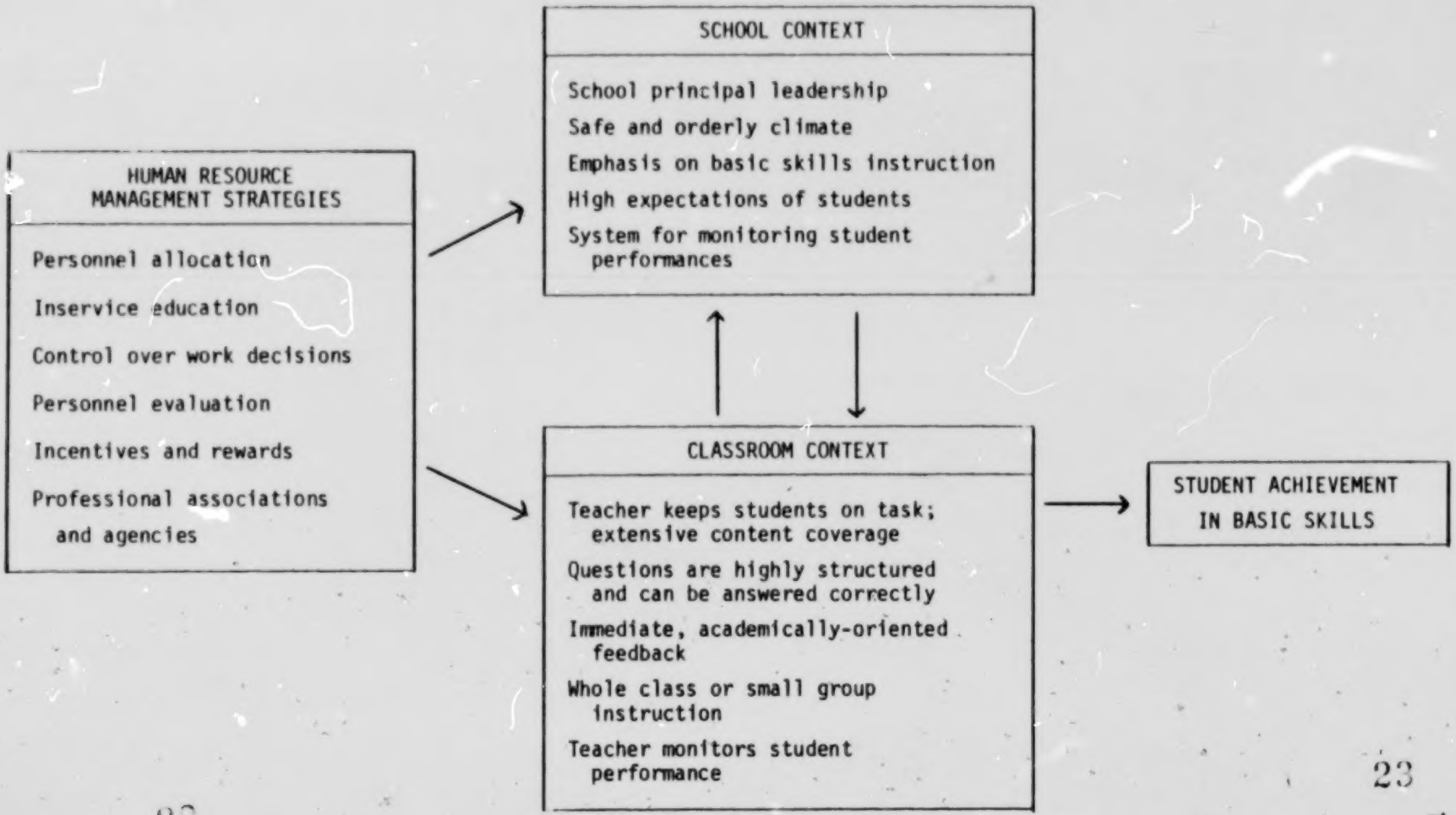
The major focus of this section is to discuss how we might best manage human resources to maximize the conditions for effective schooling. We believe that the contextual factors of schools and classrooms considered in Section I can be viewed as mediating variables between human resource management strategies and basic achievement. Figure 2 on the next page shows how these clusters of factors are positioned in the relationship between human resource management and student achievement. The large box on the left in Figure 2 includes a range of human resource management strategies for influencing school and classroom practices.

We are well aware that some important factors are not represented in our model. Legal decisions, economic forces, community context, and societal change are likely to affect human resource management practices and school productivity in complex ways. A consideration of these factors is beyond the scope of this paper. Other groups in CEPM are currently involved in formulating research programs that will investigate their effects on school productivity (Kenoe, Pierce, Goldschmidt, Bowers, and Townsend 1981, Lane and Kelly 1981).

We believe those items under the heading "Human Resource Management Strategies" in Figure 2 (Personnel allocation; Inservice education; Control over work decisions; Personnel evaluation; Incentives and rewards; and Professional associations) are among the most salient factors influencing school effectiveness and most under control of school district and school building educators. Below we explore each of these factors and the research questions which may need to be considered under the rubric of human resource management.

FIGURE 2

HUMAN RESOURCE MANAGEMENT FACTORS
AND THEIR RELATIONSHIP TO STUDENT ACHIEVEMENT


SCHOOL CONTEXT
School principal leadership
Safe and orderly climate
Emphasis on basic skills instruction
High expectations of students
System for monitoring student performances
HUMAN RESOURCE MANAGEMENT STRATEGIES
Personnel allocation
Inservice education
Control over work decisions
Personnel evaluation
Incentives and rewards
Professional associations and agencies
CLASSROOM CONTEXT
Teacher keeps students on task; extensive content coverage
Questions are highly structured and can be answered correctly
Immediate, academically-oriented feedback
Whole class or small group instruction
Teacher monitors student performance
STUDENT ACHIEVEMENT IN BASIC SKILLS

Personnel Allocation

We subsume a number of management processes under this heading. These include personnel selection, assignment of personnel to positions, and professional role differentiation.

Personnel Selection. This is the process of screening applicants and hiring new personnel (teachers, teacher aides, principals) into a school system, or promoting from within. We would like to know whether variations in personnel selection procedures have an effect on school productivity and whether some selection criteria may result in the employment of teachers, from a pool of applicants, who are especially effective in basic skills instruction.

The search for selection criteria that predict personnel productivity seems a particularly worthwhile line of research (Schalock 1979). To a certain extent, some criteria are implicit in the results of available school productivity research. For example, Murnane (1980) reviewed the research literature and found that these teacher characteristics, among others, were positively correlated with student achievement:

1. The intellectual skills of a teacher, as measured by a verbal ability test;
2. The quality of the college that the teacher attended; and
3. The extent to which the teacher has high expectations for students.

These teacher characteristics and others might be assessed at the point of screening and hiring by a school system. The question to be answered by research is whether these characteristics, in fact, predict education professionals' eventual productivity in a school system.

Similar research could be conducted on other education profession groups. Edmonds' (1979) list of effective school characteristics, discussed in Section

I, could be redefined to yield criteria for selecting building principals. For example, a selection committee might assess each candidate's ability to set up and maintain a school-wide system for assessing student performance. The research literature on tutoring can be reviewed to identify possible criteria for selecting effective teacher aides for basic skills instruction.

One can ask how important personnel selection is in determining student achievement. Might not a school system use relaxed selection procedures and then provide inservice training to obtain the on-the-job performance it desires of its education professionals? This seems a reasonable option, but it involves high expenditures for inservice education. In addition, students may learn less while educators are being trained on-the-job. An analysis of the costs of each management practice compared to the productivity gains of each would yield a repertoire of cost-effective strategies for personnel selection.

The knowledge base about personnel selection in education is quite small. This is perhaps due to the need for large numbers of new school personnel in American education until the last five or ten years. The declining student population, combined with greatly reduced teacher mobility and number of position openings, have increased the applicant-to-position ratio. This situation provides greater opportunities for personnel selection research in education than were previously available.

Position Assignment. Another aspect of personnel allocation is assignment of personnel to positions. New positions occasionally are created in school systems, and existing positions become vacant. These positions may be filled by

employing new personnel (see above), but they also may be filled through re-assignment of personnel already in the school system. We know little about how decisions are made to create and fill school positions.

It seems reasonable that personnel allocation practices would have an effect on school productivity. For example, the decison to assign teacher aides to classes with low-achieving or handicapped students may result in improved classroom productivity. The transfer of an ineffective teacher from one school to another may result in lowered achievement for the class to which that teacher is assigned. This phenomenon is illustrated by the recent experiences of the San Francisco School District in Hunters Point, a black ghetto in a rundown section of San Francisco (Hardy 1981). Even after several years of improvement efforts, students in the elementary schools there have very low test scores. Among the reasons given are the following:

1. Teachers haphazardly assigned. Most come off the layoff list, and are not hired because of a special sensitivity to the needs of low-income, low-achieving minority students.
2. High teacher turnover in the schools.
3. Teacher aides in every classroom. Federal regulations require that parents and community residents be hired as aides. Most of the aides do not have high school diplomas and some still have difficulty speaking English." (pp. A1, A4-5).

It is hard to believe that these occurrences do not have an effect on school productivity. We need to know the prevalence of such conditions, and whether a more rational set of personnel allocation practices might improve school productivity.

We think that personnel allocation involves two basic types of decisions.

First there are decisions about how many positions to assign to certain school or classroom tasks. A teacher may have no aides available, or one, or two. A school may operate with or without resource specialists and vice principals. The question that needs to be asked is whether or not additional positions within the school structure, above the usual quota of classroom teachers, have any effect on student outcomes. The use of aides, resource teachers, peer tutors and school counselors is assumed to benefit students, although there is very little hard evidence to support these claims. Explicit data are available to substantiate the use of peer tutors (Ehley and Larson 1980; Lippitt and Lohman 1965), and some data are available to support the use of teacher aides (Conant 1971.) Research on the contributions of resource teachers and school counselors, however, is very difficult to find.

The second type of decision concerns which personnel to assign to school tasks. Deployment of teachers may affect the quality of resources available to a particular group of students, even though the quantity of resources remains constant across groups. Murnane (1980, p. 14) has suggested that between-school variations in such resource factors as physical facilities, class size, curricula, and instructional strategies may affect the process by which certain teachers are allocated to particular schools.

The most modest kind of resource allocation, then, is to assign to each classroom personnel who are at least minimally qualified to teach. More sophisticated resource allocation strategies involve systematically deploying personnel, based on their qualifications, to particular assignments.

Role Differentiation. The way in which education professionals fill instructional and administrative roles constitutes another set of options in personnel allocation. For example, the practice of having one elementary teacher provide instruction in all subjects within one classroom may be effective in some settings, but it may be maladaptive in others, especially in settings that contain large numbers of low-achieving students. Also, in some settings it may be unreasonable to expect the school principal to both exert instructional leadership and perform general administrative functions. These functions may best be assigned to different personnel, or handled through appropriate support services.

In sum, personnel selection, assignment, and role differentiation are important factors in personnel allocation. From our analysis, the definitive question that emerges is, If school administrators were to make a concerted effort to improve the basic skill achievement of low-performing students, what options should they exercise in personnel selection, personnel allocation, and role differentation? The knowledge needed to answer this question intelligently does not exist. A research program on personnel allocation in the education professions would be highly desirable. Research that has been completed on personnel selection and related problems in other professions (Dunnette 1976) may provide useful insights for guiding such a program.

Inservice Education

As we stated earlier, we distinguish the school as a unit from either the school district or the classroom. The school unit is an important context for

a consideration of schooling effectiveness. For example, the collection of attributes such as school-wide rules of discipline, high teacher expectations for pupils, homework assignments, and high academically engaged time reveals an important structural theme: namely, that schools are social institutions--collectives of professionals and students. In more effective schools, students and staff engage in particular behaviors and create a set of norms, values, rules, and expectations which are different from those created in less effective schools. Even if we were to assume identical and optimal preservice education programs for teachers and administrators, some schools are more effective social entities as a result of a special combination of technically competent professionals who arrange and order school life differently than do others. Although the research has begun to identify the attributes of these more effective schools, research needs to be conducted on how such conditions are indeed created. What are the most effective ways for establishing school-wide professional agreements regarding discipline or homework policy? How does one go about creating common teacher expectations for students within a school?

We believe that inservice education is a necessary and vital factor in the school effectiveness effort not only because most educational professionals already hold positions, but also because the need for inservice is an inherent condition of school life. To study conditions correlated with more effective schools, it is necessary to analyze the inservice mission on two levels. First, effective inservice will require strategies for reaching agreement at the school building level on such topics as goals, expectations, and discipline. These strategies have not yet been identified. We need research that more accurately describes successful school-wide programs aimed at achieving professional consensus.

Second, inservice must be undertaken concurrently with these programs to help individuals or clusters of teachers within the school whose individual skill levels need to be enhanced. It would do little good for an inservice program to successfully achieve school-wide teacher and administrator agreement on particular rules, norms, behaviors, and curricula if, in fact, teachers were incapable of appropriately implementing such agreement, materials, or strategies.

Classroom Inservice. For inservice education to effect the implementation of policy on basic skills instruction, we must know how inservice education affects teacher productivity. The present knowledge base is weak. Previous research on inservice education has focused mostly on descriptions of isolated, individual inservice programs and their immediate effects on teacher knowledge and attitudes (Joyce and Showers 1981). Very few studies have examined the possible links between inservice education and enhanced teacher productivity even though such links provide the ultimate justification for devoting school system resources to inservice education. Furthermore, to our knowledge, there are no studies that have explored the interconnections between the inservice experiences of individual teachers over a specified time frame. It is possible that some experiences have the capacity to enhance teacher productivity, but are cancelled out by other distracting experiences that channel the teacher away from efforts to change his or her behavior with respect to basic skill instruction. What for example, is the relationship between individual teacher-initiated inservice and school-wide inservice programs?

Fortunately, there is a small but growing number of studies that have investigated, through controlled experimentation, the effects of inservice edu-

cation on teacher productivity--defined as capability to bring about improvements in student performance and achievement. These studies are recent; most of them were completed in the last 5 years. In each study a group of teachers received the experimental inservice training while a control group of teachers continued their regular activities. Following the training phase, researchers observed the students of both groups over a period of time to determine training effects on the students' classroom performance and/or achievement.

Four of these experiments were reviewed by Gage (1980) in a paper entitled "The Causal Connections Underlying Teacher Education." The experiments involved either basic skills instruction in reading (Anderson, Everston and Brophy 1979); or in mathematics (Crawford et al. 1979, Good and Grouws 1979). In each experiment the content of the inservice program was a set of instructional techniques which, in previous research, had been found to correlate with measures of student achievement. For example, in Good and Grouw's study, the instructional techniques taught to the experimental group were derived from earlier correlational research in which the instructional behavior of teachers who were consistently effective or ineffective in obtaining student achievement results was compared (Good et al. 1977).

The teaching methods identified by Good and Grouws (1979) illustrate the kinds of content that are effective in inservice education with respect to basic skills instruction. Rosenshine (1976) has also compiled a useful synthesis of effective methods. A common theme of these techniques is that they keep students on task and require teachers to remain engaged in instruction throughout the time allocated for math and reading lessons. Both of these elements were found to be correlated with student achievement in the Beginning Teacher Evaluation Study, a recent large-scale research project (Denham and Lieberman 1980).

In summary, the evidence from the experiments reviewed above strongly suggests that inservice education with a content focus on instructional techniques validated against basic skills achievement criteria is more likely to enhance teacher productivity than inservice education with a different content focus. Furthermore, it may be that the effects of "basic skills" inservice education will be cancelled out if the teacher is distracted by receiving other inservice content during a given time period. For example, Stallings and Kaskowitz (1974) found that amount of classroom time spent on activities other than basic skills was negatively correlated with student achievement in basic skills. Stallings and Kaskowitz studied young children, but the principle that presentation of competing content within a fixed time frame lowers certain achievement outcomes may also apply to adult learners such as inservice teachers.

Of the various processes that have been used in inservice education, the skill-training method appears to be the most generally effective and best researched (Borg, Kelley, Langer and Gall 1969, Peck and Tucker 1973). The process of skill-training includes these steps: the teacher is trained to discriminate among the various instructional skills to be learned; the teacher observes models who demonstrate the skills; the teacher practices the skills under simplified or otherwise controlled conditions, and the teacher is evaluated on his or her performance of the skills. There is some evidence (Klinzing and Klinzing-Eurich 1981) that several repetitions of the model-practice-evaluation cycle may be necessary before significant behavior change occurs. The skill-training model is sometimes used in inservice education, but lectures, workshops, demonstrations, simulations, and reading are probably more prevalent.

Reports of the four experiments described above do not provide much detail about the training procedures that were used. Fairly simple training processes apparently were used in three of the experiments, but the Stallings experiment used an extended, elaborate process employing each element of the skill-training model. These studies raise the question of the relative contribution of inservice content and inservice process to teacher productivity. The experiments do not permit a clear answer to this question, but a recent experiment by Coladarci and Gage (1981) found that content alone is not sufficient to affect student achievement in the basic skills. They simply mailed to teachers a set of pamphlets describing instructional techniques similar to those used in the four experiments. Students of these teachers did not differ in achievement from students of teachers who did not receive the pamphlets.

Implementation of New Skills. Another source of research knowledge for building a model of the causal links between inservice education and teacher productivity is the literature on curriculum and instruction implementation. Even if a teacher acquires a new set of instructional skills as a result of inservice education, he or she will not necessarily use the skills in practice. Thus, implementation of inservice training is an important factor in its own right. It seems reasonable to believe that factors which influence implementation will also influence teacher productivity.

The available research on implementation was reviewed by Fullan and Pomfret (1977). Of particular interest to us is Fullan and Pomfret's conclusion, based primarily on the Rand studies of educational change (Berman and Pauly 1975), that "intensive in-service training (as distinct from single workshops or pre-service training) is an important strategy for implementation" (p. 37). It seems reasonable that "one shot" inservice education will have less effect on

teacher productivity than continuous inservice education that includes monitoring and maintenance. Monitoring requires continued observation of teacher and student performance to insure that behavior changes as a result of an inservice program are maintained at an appropriate level. Maintenance involves procedures for retraining teachers if classroom performance falls below an appropriate level.

A recent analysis by Joyce and Showers (1981) reinforces the above findings. After an extensive analysis of over 200 studies of inservice, Joyce and Showers argue that (a) there is a clear distinction between simply "fine tuning" present skills and mastering new teaching strategies or models of teaching, and that (b) the impact of most inservice training is negligible beyond the teacher's acquisition of new knowledge or attitudes. They maintain that to create a new behavior repertoire actually used in a regular classroom setting, inservice programs must furnish extensive treatment not normally provided in such settings. Moreover, they conclude that effective inservice training (which results in the appropriate use of the learned skill after training) requires ample opportunity for (a) acquisition of theory, (b) viewing of models and demonstrations, (c) practice and evaluation in simulated classroom conditions, and (d) coaching under normal classroom conditions until the skill or model is fully integrated into the teacher's repertoire.

Research is needed to observe and describe the dimensions of inservice education as experienced by the individual teacher. Most previous research on inservice education has focused on particular programs and on collapsed individual teacher data to yield group means. Thus, we know very little about the amounts and kinds of inservice education received by individual teachers over specified time periods and about the cumulative effects of inservice education on a teacher's productivity.

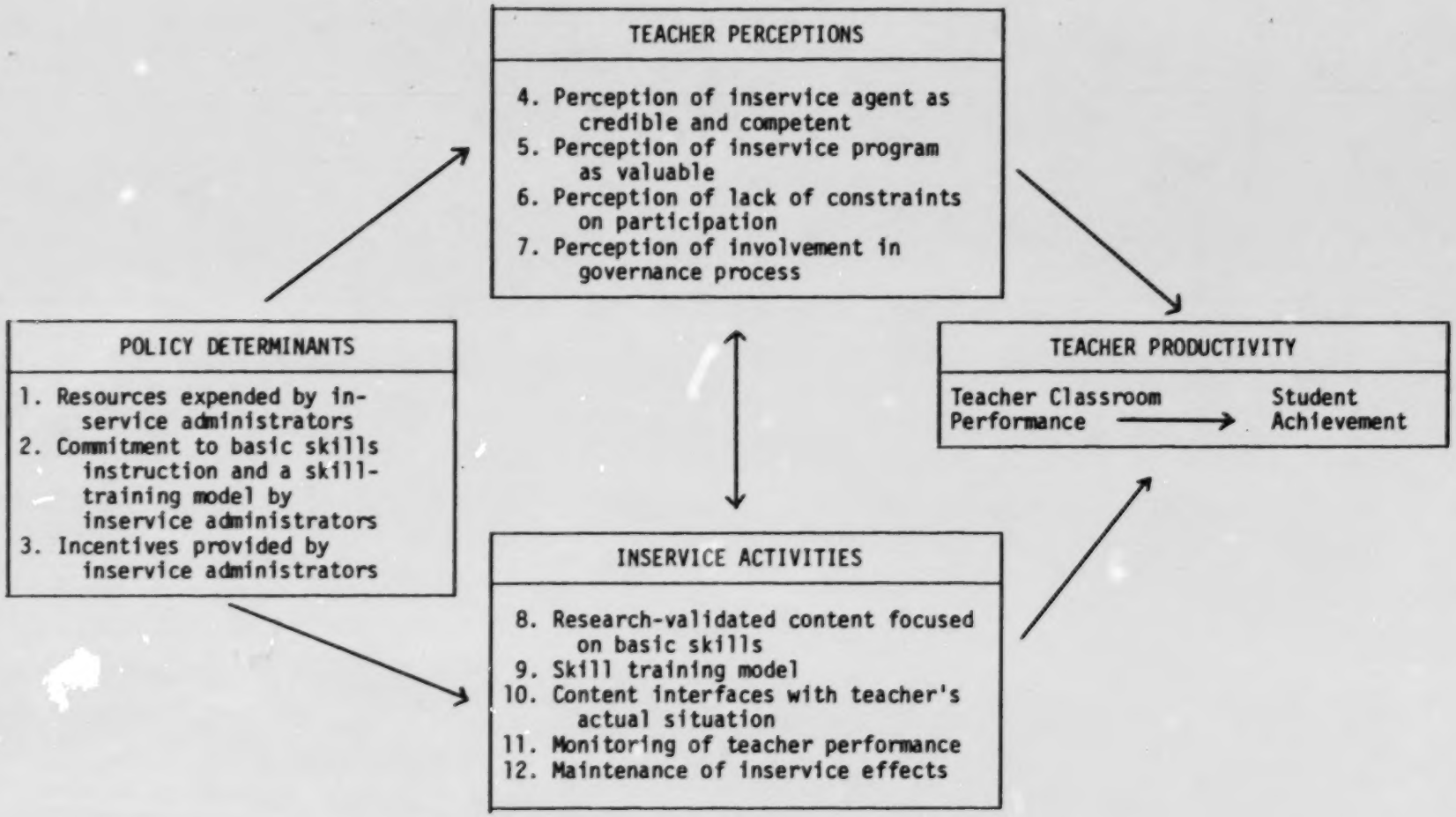
School-level inservice. Joyce (1981) suggests an ecological perspective, which returns us to our concern for school-level inservice. This demands that certain conditions must be present. First, the school must become a problem-solving unit in which faculty and administration are working together to improve the school and to build an environment which is oriented toward professional growth. School improvement and an orientation toward professional growth must be integrated. That is, there must be a school-wide set of norms that favor in-service education. Second, the school needs to be characterized by integrated governance. Teachers, administrators, and community members need to be brought together to examine the school, select directions for improvement, look at the growth environment for the professionals in the schools, and make decisions about how to make needed changes.

Joyce further hypothesizes that the above conditions for inservice can only survive in an environment that nurtures this type of problem solving and integrated governance. The nurturing environment would be one in which professionals share ideas not only verbally but also through observation, peer coaching, and demonstration. Administrators and teachers might engage in clinical supervision. Critical to these activities is the fact that they must all be explicity related to school improvement, which for our agenda would mean school-wide basic skills improvement.

A Model of the Effects of Inservice Education. Figure 3 on the next page presents a causal model of the effects of inservice education on teacher productivity. Each of our hypothesized links between inservice education and teacher productivity, based on a review of literature, is represented in the model. The elements of resource expenditures and teachers' perceived involve-

FIGURE 3

MODEL OF THE EFFECTS OF INSERVICE EDUCATION ON TEACHER PRODUCTIVITY IN BASIC SKILLS INSTRUCTION


TEACHER PERCEPTIONS
4. Perception of inservice agent as credible and competent
5. Perception of inservice program as valuable
6. Perception of lack of constraints on participation
7. Perception of involvement in governance process
POLICY DETERMINANTS
1. Resources expended by in-service administrators
2. Commitment to basic skills instruction and a skill-training model by inservice administrators
3. Incentives provided by inservice administrators
TEACHER PRODUCTIVITY
Teacher Classroom Performance
Student Achievement
INSERVICE ACTIVITIES
8. Research-validated content focused on basic skills
9. Skill training model
10. Content interfaces with teacher's actual situation
11. Monitoring of teacher performance
12. Maintenance of inservice effects

ment in governance are also represented, although we currently take a neutral position about their effects on teacher productivity.

The descriptive-correlational-experimental loop described by Rosenshine and Furst (1973) has proved to be a fruitful paradigm for teacher effectiveness research over the past decade or so. First, descriptive research identifies and measures variables that represent possibly significant aspects of teacher behavior in the classroom. In the correlational phase of the loop, these teacher variables are correlated with measures of student achievement. Significant correlations are then checked for causality through controlled experimentation, the final phase of the loop.

We believe that the same sequence of description-correlation-experimentation can be used to identify elements of inservice education that lead to increases in teacher productivity. At this point there is very little knowledge about the frequency with which the variables represented in our model (Figure 3) occur in the actual practice of inservice education. Inservice education is predominantly described at the program level rather than from the perspective of the individual teacher. Beyond this gap in knowledge, there is even less certainty about how to measure the variables.

The model in Figure 3 suggests relationships among the three areas of inservice activities, teacher perceptions, and policy determinants. Central to our concern is research that helps one understand how each of these areas relates to teacher productivity and, ultimately, to student achievement. We list below some examples of research needed under each area.

Inservice Activities:

1. To define variables related to the content, training process, content interface, and monitoring/maintenance found in inservice practice. To develop measures of these variables.

2. To describe the range of content, training processes, content interface, and monitoring/maintenance that individual teachers receive. What are typical patterns, and what is the extent of variability among teachers?
3. To determine the percentage of individual teachers' inservice experiences that is focused on basic skills instruction and a skill-training model. To what extent do the other content and training processes interfere with or support, training in basic skills instruction?
4. To determine the relationship between variations in teachers' inservice experiences and their perceptions of its effects on personal productivity.

Teachers' Perceptions:

5. To define variables related to teacher perceptions of inservice agents (credibility and competence), inservice activities valued by teachers, constraints on participation, and involvement in governance. To develop measures of these variables.
6. To determine the relationship between teacher perceptions and their participation in inservice activities varying in content and training processes. Are they generally more positive about and involved in certain types of inservice activities than other types?
7. To determine the relationship between teacher perceptions of inservice experiences and instructional effectiveness.
8. To describe teachers' rationales for selecting voluntary inservice activities.

Policy Determinants:

9. To define variables related to resource expenditures, incentives, and

commitment to basic skills instruction. To develop measures of these variables.

10. To describe the range of resource expenditures, incentives, and extent of commitment to inservice education in basic skills instruction and a skill training model by inservice administrators. What are typical patterns, and what is the extent of variability among teachers?
11. To determine the relationship between inservice administrators' commitment to inservice education in basic skills instruction and the actual content and training processes received by teachers.
12. To describe inservice administrators' rationale for resource expenditures and selection of inservice content, training processes, and incentives.
13. To develop management techniques to encourage teachers to participate in and construct inservice programs that enhance basic skills achievement.

Control Over Work Decisions

Power and control in work settings may be formally allocated or informally assumed. For instance, school teachers are formally charged with the control of students in their classrooms and principals are formally assigned authority over the personnel in their buildings and are expected to assume a role of instructional leadership. Yet, in reality, teachers have traditionally felt that they have a relatively high amount of autonomy and influence in decisions made about instructional issues related to the classroom (Pellegrin 1976). Although schools are often characterized as bureaucracies (e.g., Katz 1975, Tyack 1974), this characterization should not be overemphasized (Dreeben 1973, Pellegrin 1976). In fact, teachers possess a good deal of discretion in their everyday

decisions and the extent of bureaucratic control over teachers is relatively slight. Even though principals ultimately have authority over classrooms, teachers retain considerable actual control over behavior behind their classroom doors.

The typical pattern of administrative control is termed "loose coupling" (Weick 1976). The school effects literature reviewed above suggests that greater student achievement gains occur when a principal is a strong instructional leader. Yet, teachers have traditionally had extensive autonomy in the instructional realm and in decisions regarding curricula used within their own classrooms. The push to maximize student achievement may dictate greater administrative control over classroom instructional practices. This in turn may threaten teachers in the exercise of authority within their classrooms. Given the increasing concern of teachers' groups with autonomy and control over work life (to be discussed below), these conflicting interests and the resultant tensions may prove to be an important area for research.

Although teachers usually have considerable authority over decisions directly related to their classrooms, they have relatively little influence on decisions regarding the allocation and utilization of resources within a school or district. These decisions are usually made by principals and more often by upper-level administrators and powerful school board members. Little formal decision making is actually delegated to teachers.

In recent years some authors, influenced by the literature on democracy in the workplace (e.g., Braverman 1974), have suggested that teachers would be more effective if they were involved in the actual governance of schools.

Research indicates that teachers recognize more benefits than costs arising from participation in governance decisions. They believe, however, that they would have relatively little real influence on decisions, and so most teachers are hesitant to become involved (Duke, Showers and Imber 1980). Interestingly enough, teachers seem more likely to believe that they can actually influence school decisions when they work in a more highly bureaucratized setting. Clearer lines of authority and power may serve to make an organization more predictable, orderly, and understandable. These conditions apparently enhance individuals' feelings that they can affect the workings of that organization (Moeller 1964).

Future collective bargaining agreements may include more provisions for teacher participation in governance. It could be important to examine the extent to which these provisions are actually implemented, given the long tradition that has reserved decisions regarding resource allocation and utilization to higher administrative levels. It will also be important to examine the effect of participation in governance on teacher morale, work productivity, and the achievement of students. Collective bargaining and its relationship to teacher productivity will be discussed more fully later in this section.

Personnel Evaluation

Personnel evaluation is considered an important management tool for improving or maintaining school effectiveness. Millman (1981) has identified two major functions of personnel evaluation, with specific reference to the evaluation of teachers:

> Formative teacher evaluation helps teachers improve their performance by providing data, judgments, and suggestions that have implications for what to teach and how. On the other hand, summative teacher evaluation serves administrative decision making with respect to hiring and firing, promotion and tenure, assignments, and salary. (p. 13)

Either use of personnel evaluation--formative or summative--has the potential

to improve school productivity. What is not known, though, is how to operationalize these functions of evaluation so they are acceptable to all interested parties (administrators, teachers, parents, and school boards); nor is it understood how to design systems of personnel evaluation to achieve a clear linkage between (a) the evaluative process, (b) student achievement of basic skills, and (c) other personnel management strategies, such as inservice education and provision of rewards and sanctions.

Ideas are not lacking about criteria of personnel performance, measures of performance, and design of evaluation systems, as evidenced by the recently published Handbook of Teacher Evaluation (Millman 1981). Yet most of the ideas are problematic. For example, the use of measures of student achievement gain has been proposed as a criterion of teacher effectiveness. In this approach, teachers, and conceivably other education professionals, would be judged by how well their students scored on tests of basic skills. This approach has been tried in the past (for example, as part of the accountability movement of the 1970s), but it never achieved widespread acceptance, and in the case of British education in the Victorian era, it had disastrous consequences:

> In this system, teachers were paid in terms of their effectiveness, and the effectiveness of teachers was determined through school inspectors administering tests to pupils near the end of the school year.... The system corrupted the entire educational program, for schools became places where pupils crammed for examinations. (Travers 1981, p. 17)

Still, the use of pupil achievement criteria in personnel evaluation is appealing, and in fact seems essential, if one accepts the premise that one goal of schooling is to promote basic skill achievement. A challenge for research is to determine whether a personnel evaluation system that includes pupil achievement criteria, without the side-effect of teaching-to-the-test, can be designed and validated.

The literature appears to agree that personnel evaluation will be ineffective unless the education professionals being evaluated are involved in the design and execution of the evaluation system. Evaluation objectives are a particularly critical area of negotation. In clinical supervision, which is used in some school systems for formative evaluation, teachers are heavily involved in the formulation of objectives for personal improvement. Yet Iwanicki (1981) observed, "In settings in which personal needs received priority in developing performance objectives, teachers have tended to be satisfied with their professional growth, but appreciable changes in the overall quality of the educational program have not been observed" (p. 205). On the other hand, personnel evaluation systems based on objectives established by central management have encountered different sorts of problems. For example, teachers have resisted the use of evaluation systems based on a management-by-objectives approach, in which priority objectives are set for the organization and its subunits through a review of the missions, purpose, and long-range goals of the organization (Iwanicki 1981, pp. 204-205).

Research is needed to determine how objectives of personnel evaluation become established and how congruence between the objectives of education professionals and the objectives of school systems can be achieved. In a sense, this issue is related to one that we raised earlier in the paper. Research suggests that a characteristic of effective schools is the presence of "agreement among the professional staff that instruction in the basic skills is the primary goal of the school," but little is known about how such agreement develops and becomes established over time.

Another important issue in personnel evaluation concerns assigning responsibility for student learning. Teachers tend to be evaluated as if they were the primary agent responsible for student achievement, yet we know that many

factors beyond the teacher's immediate control impede or facilitate teacher performance. McKenna (1981) described the problem as follows:

> Teacher evaluation...must be considered in the context of community characteristics, resources, and effort for schooling, in the context of the total school system climate and organizational arrangements, in the context of the way in which the school unit and its leadership function, in the context of the time, human, and material resources and autonomy provided the classroom teacher, and in the context of the characteristics of the students themselves. (p. 36)

Research is needed to determine the implications of this view for the design of personnel evaluation. It may be that personnel evaluation needs to be coordinated with evaluation of school-level effectiveness, focusing on factors associated with school productivity that were identified in Section I. Theoretical work on personnel evaluation in an organzational context (Dornbusch and Scott 1975) may provide a useful basis for designing research on this problem.

Incentives and Rewards

It is a well recognized psychological tenet that individuals perform at their best when they are rewarded for their achievements. If we are concerned with designing work situations that maximize the productivity of students and teachers, it is important then to consider the types of incentives and rewards that will be most effective.

Incentives come from at least two sources: external (orders from superiors, legal mandates, political influences, economic constraints) and internal (personal values and professional goals). Lortie (1975) reported two surveys indicating that teachers are motivated primarily by intrinsic factors. In one survey, teachers listed psychic rewards at least six times more often than any other type when describing their source of work satisfaction. Lortie observed that "teachers consider the classroom as the major arena for the receipt of psychic rewards.... Other sources of satisfaction...pale in com-

parison with teachers' exchanges with students and the feeling that students have learned" (pp. 104, 106). Several factors contribute to or detract from the potency of these incentives. Pincus (1974) noted three factors (bureaucratic safety, external pressure, and approval of peer elites) and Glaser and Ross (1971) cited five (organizational attitudes and structures that support change, clarity of goal structures, professionalism, reasonable organizational autonomy from pressure groups, and few strong-vested interests in maintaining the status quo).

One obvious and relatively inexpensive external incentive is that of positive verbal reinforcement, the type commonly given to students when they perform well. It has been suggested that verbal reinforcement may also promote greater achievement in teachers (Reyes 1981). Currently teachers receive increases in pay when they attend school or receive additional degrees. It may also be possible to reward exceptionally good teachers (as measured by the achievement of their students) with increases in pay or one-time merit awards of money (Casey 1979), although such programs involve many complex problems (Educational Research Service 1979, McDowell 1973, Meyer 1975).

In addition, it might be possible to provide incentives and rewards on the school level. The Dade County (Florida) school system made allocation of additional funds to individual schools contingent on demonstrated savings in equipment and maintenance budgets as well as in payments to substitutes (Cooper, Dreyfuss, and Boekhoff 1980). Preliminary indications are that the system is attractive to teachers and that large savings have been realized and returned to the schools. Such school-based incentives could conceivably be extended to the areas of achievement, so that teachers and students who showed the greatest gains in achievement might be rewarded. We see a need for research which focuses on developing successful incentives and rewards for both students and teachers.

Although external incentives may be necessary in the early stages of school improvement efforts, internal motivation is probably essential for successful implementation and incorporation of these efforts. Sometimes actual internal motives are concealed in an effort to conform to the expectations obscured by espoused goals of external motivators (Argyris and Schon 1974). For example, offers to change practices in return for federal funds are often not accompanied by strong motivation to make significant changes. Berman and McLaughlin (1975) found frequent examples of "opportunistic" districts that claimed to be willing to undergo change when, in fact, their true motivation was to obtain additional funds to maintain traditional district services. Organizations with few or inconsequential incentives related to student achievement may have difficulty motivating faculty to expend the considerable effort needed to increase student achievement or reach other goals (cf., Wyant 1980).

Professional Associations and Agencies

There exists in public education a variety of formal and informal professional associations and agencies that indirectly affect instructional enhancement strategies. These include, for example, teacher and administrator associations and unions, subject matter associations (e.g., National Council for the Social Studies and its state and local affiliates), educational honoraries, teacher education institutions, state departments of education, regional and state accrediting and licensing agencies, teacher centers, and the more informal teacher and administrator collegial associations within a school building or district. Several examples may be useful in illustrating these indirect influences. We have selected state licensing, collective bargaining and teacher centers for discussion here.

State Licensing. State certification agencies mandate teacher certification requirements at both the preservice and inservice levels, usually in the form of specified credit hours or courses. One question that needs to be addressed is to what degree such certification requirements interfere with the training required by teachers for effective instruction in the basic skills. The State of Oregon, for example, recently required that all teachers obtain the equivalent of a Red Cross first aid certificate and pass an exam on federal and state anti-discrimination laws. The state also recently required secondary teachers presently teaching in junior high schools to meet a new set of standards if their schools become middle schools. The necessity for such requirements need not be debated here. To what degree, however, do such externally imposed requirements make it more difficult to engage teachers in instructional improvement at the school district or building level? External edicts may work at cross purposes to strategies for increasing school effectiveness and need to be investigated.

Collective Bargaining. An increasing body of literature suggests that collective bargaining greatly influences school organizations and the work behaviors of education professionals. Although these studies begin to give insight into how collective bargaining affects the interactional and organizational practices of schools, they have not yet examined a key area of interest, enhancing student achievement. It is important then to consider how changes resulting from collective bargaining may influence, either directly or indirectly, school and classroom environments that increase student achievement.

Some positive gains have been noted from collective bargaining. The economic gains to teachers have been relatively slight (Garms, Guthrie, and Pierce 1978). However, bargaining has probably increased teacher participation in decision making and improvement of working conditions, such as in the hiring of aides (Perry 1979). On the other hand, an in-depth study of the effects of collective bargaining in eight districts in two states indicates an almost accidental redefinition of teachers' roles and responsibilities. Mitchell, Kerchner, Erck, and Pryor (1981) suggest that contract clauses that separate regular and "extra duty" work result in classroom work being given "a decidedly reduced priority" in teachers' work agendas (p. 157). Specialized teachers, such as those responsible for remedial instruction, appear to be ignored both by teacher and management representatives in the bargaining process, and the importance of their role is minimized. In addition, Mitchell and his associates observed long periods of teacher unrest and poor work performance as a reaction to periodic problems in the labor negotiation process. Thus, although collective bargaining may produce somewhat better learning conditions such as providing support services, informal and apparently unanticipated by-products of the bargaining process may include strict attendance to work hours, less support for specialized personnel, and actual work slowdowns.

Research is needed on the extent of these unintended by-products of collective bargaining and their specific influence on the conditions needed for effective schooling. For instance, we could ask if some contract items are more conducive to the development of effective learning situations than others. What is the influence of items and policies related to class size, extra duties,

and transfer on student achievement? We could also ask what impact decreasing attention to special teachers will have on the achievement of students with learning problems, especially those who may already suffer from educational inequities. Finally, we could ask how the stresses and tensions associated with the collective bargaining process (Vyskocil and Goens 1979) affect such factors as attention to work, staff interactions, and expectations for student performance.

Collective bargaining usually involves direct contact between teacher representatives and the representatives of administrators and the school board. Principals and other middle managers are usually excluded from the negotiation process, even though the greatest burden of fulfilling contract obligations frequently falls at the building level. Building principals often lose some authority as a result of bargaining agreements and feel pressured to be more "careful" in their relationships with teachers. At the same time, principals may be given new specific supervisory responsibilities over teachers and are still charged with maintaining a smoothly operating building (Johnson 1981a, Mitchell et al. 1981). Johnson (1981a, 1981b) notes wide variation in the enforcement of contract provisions from one school to another within districts. The relative enforcement of a contract clause appears to be influenced by the nature of the clause involved and its importance to the teachers, but especially by the leadership style of the principal. Some principals are apparently much more effective than others in persuading teachers to perform extra duties voluntarily by stressing the interdependent characteristics of the school organization and building on teachers' concerns about student achievement and teachers' ambivalence regarding collective bargaining.

Research could focus on identifying management practices that protect teachers' rights while maximizing the provision of effective learning environments for children. For instance, are there ways that building principals can minimize teacher stress and its effect on classroom work during times of contract negotiation? Or, given the constraints of bargaining agreements, how may principals work with teachers to develop environments that encourage student achievement as a top priority?

Mitchell and his associate (1981) describe variations in the collective bargaining process from one district to another and suggest that districts move through three typical stages as collective bargaining becomes established. Labor relations begin in a pre-bargaining stage, when teachers and administrators confer about common educational problems and teachers are recognized as "professional or quasi-professional employees." The contractual stage is characterized by a "good faith" bargaining style typical of the private sector. In this second stage, teachers and management are more differentiated. The teacher is seen as a quasi-professional or "worker." Mitchell and associates find some evidence that this second stage, which is perhaps most common in school districts today, may be altered by the political concerns of citizen groups evaluating the quality of teachers' work. A third type of collective bargaining has appeared in some districts where the views of parties other than labor and management, such as parents, are included in the bargaining process. They suggest that there is also a re-recognition of teachers' "unique insights into the learning problems of children and the operational problems of schools" (p. 183). However, close monitoring of teacher performance is still negotiated as part of the labor agreement.

We may ask then if the inclusion in the negotiation process of the interests of parents and others outside the schools affects the development

of effective learning environments. We may also ask how the different perceptions of teachers' professional roles from one stage of the collective bargaining process to another affects teachers' commitment to and success in providing effective learning environments. Finally, what types of supervision and monitoring capacities as defined in collective bargaining agreements are most effective in promoting student achievement?

Teacher Centers. A quite different type of professional association is that of the teacher center. Born in the wake of the British teacher center movement of the 70s, locally-funded centers and federal teacher center legislation in 1978 have institutionalized the collaboration of professionals. Such programs are worth studying. For example, the federal program mandates a governance system for inservice that requires teacher control as well as collaboration of the teacher, administrator, higher education, and community constituent groups.

As noted by Mertens and Yarger (1981), it is at the policy board level that some of the most significant organizational developments have been considered. Policy boards, which govern teacher centers, are required to have a teacher majority in addition to representatives of district administrations and institutions of higher education: "The teacher center policy board provided a new forum for collaboration" (Mertens and Yarger 1981, p. 157).

Informal organization among teachers is an implicit goal of teacher centers. In an effort to balance the solitary nature of teaching, this interest in linking teachers who have similar needs or interests is characteristic of all teacher centers. It is accomplished locally through study and discussion groups supported by the local center. Nationally, collaboration is fostered by organizations like Teacher Center Exchange and by regional

and national dissemination efforts supported by the national Teacher Center Program.

Teacher centers as organizations have a unique, if fragile, opportunity to establish or promote norms among their teacher-clients. Given their increasing credibility among teachers and their relative distance from the tensions of collective bargaining, centers have the opportunity to introduce innovation which, from any other source would be suspect. For example, when findings of recent research originate from the school administration, teachers are prone to question the underlying motives; if from the university, teachers doubt the validity of the context; if from teacher associations, the choice of research is seen as self-serving. But teacher centers may be able to introduce such findings relatively free of suspicion.

We believe a fruitful area of research would be to investigate the role(s) of teacher centers as complementing and/or initiating agencies in promoting more effective schools. The inherent, collaborative policy board of federally-sponsored teacher centers may serve as a model for instructional enhancement at the school level. At the same time, the existence of such autonomous units may pose a threat to school systems eager to "control" human resources.

Conclusion

Basic skills and equity have been identified once again as priority goals of schooling. We find evidence of consensus concerning these goals at all levels of education--in schools, districts, state departments, and the federal government. However, although consensus exists, it cannot be taken for granted. Even when educators agree on basic skills instruction and equity in general, they may disagree on the particulars--teaching practices, standards, content, materials, and assessment. Also, consensus is not universal. Some educators, for example, disown principles of direct instruction. Moreover, new curriculum priorities are continually proposed. At least some of these new priorities distract from the effort to improve equity and basic skill achievement. Given these problems, we emphasize the need for research to improve our understanding of how education professionals organize and alter their perceptions to reach consensus on equity and basic skills instruction. The need for this research is reinforced by the studies discussed earlier in the paper, indicating that consensus on basic skills outcomes is a characteristic of effective schools.

Our review of the literature has revealed a potent knowledge base about the conditions of schooling that facilitate basic skills achievement. This new knowledge, most of it developed within the last 5 years or so, is consistent with common sense and intuitive notions about effective instruction. We should keep in mind, however, that the available knowledge is largely derived from correlational research. We advise exploring the policy implications of this research, at the same time remaining sensitive to the possiblity that some findings may not hold up when controlled experimental studies are completed.

A sequence of descriptive-correlational-experimental research has proved to be quite productive in research on classroom teaching (Rosenshine and Furst

1973). We believe that the same sequence of research will be just as productive in improving understanding of human resource management in schools.

We have reason to believe that the conditions of effective schooling are not easily instituted. For example, teachers do not easily apply principles of direct instruction although these principles have been related to higher achievement. Research studies by Gersten, Carnine, and Williams (in press) demonstrated that proficiency in direct instruction requires an extensive period of training on an individual basis. An additional complication is that some teachers are resistant to such training efforts.

The fact that conditions of effective schooling are not easily instituted creates new challenges for administrators. As we have indicated throughout this paper, relatively little is known about the management practices that are necessary to help education professionals bring about the schooling conditions associated with basic skills instruction.

A most encouraging development is educational administrators' current high level of interest in school-and classroom-level instruction, representing a shift from their traditional excessive involvement in such matters as finance, collective bargaining, and school level concerns. Undoubtedly, one cause of this heightened interest is the public's present concern about the quality of instruction in American schools. Also, educational administrators are becoming increasingly aware of the research on basic skills instruction and its implications for their work (Erickson 1979).

One line of research that is likely to improve managerial practices is the study of how effective schools got to be that way. Developmental research may expose the critical managerial decisions, actions, and role perceptions that culminated in an effective school. Also, much research will be required to

improve our understanding of the various strategies for managing the work of education professionals: personnel allocation, inservice education, control over work decisions, personnel evaluation, incentives and rewards, and participation in professional associations and agencies. We know too little about how each strategy is linked to educational policy, on the one hand, and to the academic achievement of students, on the other.

Descriptive research can provide useful baseline data about each managerial strategy with respect to existing practices within school systems and the influence exerted by external educational organizations. Also, correlational research would be of value for identifying whether some variations within existing practice are more effective than others. For example, some inservice programs focus on basic skills instruction, whereas other programs emphasize such topics as teacher stress and classroom discipline. Correlational studies can determine whether such content variations in inservice programs are associated with variations in the achievement of students whose teachers participated in different programs. Finally, experimental studies are needed to validate promising managerial strategies identified through descriptive and correlational research.

There is a perplexing conflict in the management of education professionals. Research on school-level productivity suggests that centralized control of the work of educators appears desirable. Yet strong efforts are being made at present to increase the professional autonomy of educators, especially teachers. How can this conflict be resolved? In the long run, advocacy of total organizational control or total professional autonomy is unlikely to benefit anyone. Case studies of school systems that have had success in negotiating both organizational and professional needs may be a helpful line of research. Research should also be conducted to determine how educational organizations

outside local school systems may exacerbate or lessen conflict.

We conclude with a comment on the pessimism sometimes expressed about school improvement. Critics believe that school improvement is virtually impossible because of the entrenched bureaucracy that runs the schools, because of the poor quality of teachers, and because of past failures of research to improve practice. These criticisms should not be dismissed lightly. However, we also feel that there is substantial cause for optimism. There is a rapidly developing body of knowledge about effective school conditions for basic skills instruction. The conditions identified by researchers are already present in some schools. With further research, strategies for human resource management can be identified and implemented to bring these same conditions to most, if not all, schools.

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